

WHAT IS CLAIMED IS:

1. An optical transmission system for transmitting an optical signal from a transmitter to a receiver through a multi-mode fiber,

wherein the transmitter comprises:

5 a light emission element for generating an optical signal, and

at least one lens for converging the optical signal generated by the light emission element to focus at a focal point,

wherein:

10 the optical signal converged by the at least one lens enters an input plane of the multi-mode fiber to propagate through the multi-mode fiber;

the receiver comprises a light receiving element for receiving the optical signal outputted from the multi-mode fiber;

15 and

the input plane is placed at a position other than the focal point.

2. The optical transmission system according to claim 1, wherein the input plane is placed at a position farther away from the at least one lens than the focal point.

3. A transmitter for outputting an optical signal toward

a multi-mode fiber, comprising:

a light emission element for generating an optical signal,

and

5           at least one lens for converging the optical signal  
generated by the light emission element to focus at a focal point,  
wherein:

the optical signal converged by the at least one lens  
enters an input plane of the multi-mode fiber; and

10           the at least one lens is placed so that the input plane  
is at a position other than the focal point.

4. The transmitter according to claim 3, wherein the  
input plane is placed at a position farther away from the at least  
one lens than the focal point.

5. The transmitter according to claim 3, further  
comprising a receptacle for connecting to the multi-mode fiber  
to affix the input plane at a position other than the focal point.

6. An optical transmission system for transmitting an  
optical signal from a transmitter to a receiver through a multi-mode  
fiber,

wherein the transmitter comprises:

5           a light emission element for generating an optical  
signal, and

at least one lens for converging the optical signal generated by the light emission element to focus at a focal point,

wherein:

10 the optical signal converged by the at least one lens enters an input plane of the multi-mode fiber, propagates through the multi-mode fiber, and is outputted from an output plane of the multi-mode fiber;

15 the receiver comprises a light receiving element having a light-receiving plane for receiving the optical signal from the output plane; and

the light-receiving plane of the light receiving element is placed at a predetermined distance from the output plane.

7. The optical transmission system according to claim 6, wherein the light receiving element is a Si PIN photodiode.

8. A receiver for receiving an optical signal outputted from a multi-mode fiber, comprising:

5 a light receiving element having a light-receiving plane for receiving the optical signal from the output plane of the multi-mode fiber, and

a receptacle for connecting to the multi-mode fiber to affix the output plane at a predetermined distance from the light-receiving plane.

9. An optical transmission system for transmitting an optical signal from a transmitter to a receiver through a multi-mode fiber,

wherein the transmitter comprises:

5 a light emission element for generating an optical signal, and

at least one lens for converging the optical signal generated by the light emission element to focus at a focal point,

wherein:

10 the optical signal converged by the at least one lens enters an input plane of the multi-mode fiber propagates through the multi-mode fiber, and is outputted from an output plane of the multi-mode fiber;

the receiver comprises a light receiving element having  
15 a light-receiving plane for receiving the optical signal from the output plane; and

the input plane is placed at a position other than the focal point, and the light-receiving plane of the light receiving element is placed at a predetermined distance from the output plane.

10. The optical transmission system according to claim 9, wherein the input plane is placed at a position farther away from a vertex of the at least one lens than the focal point.

11. The optical transmission system according to claim 9,

wherein the light receiving element is a Si PIN photodiode.